

Reconstruction of Financial Ecology in the Context of Digital Economy: Case Study of Digital Chinese Currency (e-CNY)

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Abstract

This essay explores necessities, possible directions and key elements of reconstruction of financial economy in the context of digital economy with use of digital Chinese currency (e-CNY). It reveals that e-CNY has a set of unique characteristics which facilitates further growth of digital economy in China. It is expected to produce significant impacts on the existed financial ecology because power and resources are reallocated and consumer behaviors are changed. To adapt to development of e-CNY and digital economy, it is necessary to adjust financial ecology. The relationships among the central bank, commercial banks, the third party payment platforms, suppliers and consumers should be rebuilt in the context of e-CNY and digital economy.

Keywords

Digital Economy, Digital Chinese Currency, Reconstruction, Financial Ecology.

1. Introduction

Since 2014, the People's Bank of China, the central bank, has started researches and pilot projects on digital Chinese Yuan (e-CNY). e-CNY is the digital form of the Chinese currency, equaling to cash and coins (Kharpal, 2022). It is included in M0. In the end of 2017, the top framework, technical standards, and basic functions of e-CNY were established. Since 2019, a series of pilot projects of e-CNY have been carried out in several cities such as Shenzhen, Suzhou, Chengdu, Shanghai, Changsha, and Xi'an. By the end of July 2021, the pilot projects of e-CNY had been launched in 10 cities as well as in the Winter Olympic Games. It indicates that e-CNY has become an irreversible trend in China. Though the central bank has not publicized the timetable of formal use of e-CNY, e-CNY is expected to produce significant influence on financial ecology. It requires financial institutions and relative companies to rebuild their financial ecology to adapt to development of e-CNY. This essay aims to reveal necessities and key elements of reconstruction of financial ecology in the context of digital economy with use of e-CNY. It focuses on three parts. The first part examines characteristics of e-CNY and its linkage to digital economy. The uniqueness of e-CNY as well as its role in facilitating digital economy are revealed. The second part explores impacts of e-CNY and digital economy on the existed financial ecology. The impacts indicate that reconstruction of financial ecology is necessary to adapt to development of e-CNY and digital economy. The third part focuses on reconstruction of financial ecology. The possible directions and key elements of financial ecology reconstruction are discussed.

2. Characteristics of e-CNY and its linkage to digital economy

Characteristics of e-CNY

e-CNY has some unique characteristics. First, it is highly reliable and secure. It is issued by the central bank and supported by the state. Hence, e-CNY has the highest level of reliability and security since it is backed by the national credit. Second, e-CNY can be anonymously used. Currently, electronic currency used on the third party payment platforms, such as Alipay and

WeChat, is not anonymous. Personal information is required to use the third party payment platforms. Comparing with electronic currency used on these platforms, people who do not want to use their personal information tend to prefer e-CNY. In fact, anonymity is an important competitive advantage of e-CNY. With growing awareness of privacy protection, more and more people take prudent attitude toward their personal information. Since spending is a sensitive issue which relates to privacy, they do not want the third party payment platforms to know, collect and analyze their spending data. Therefore, e-CNY is more attractive for them. Third, e-CNY does not require users to combine their bank accounts. e-CNY has its own app. Different from financial apps which require users to combine their bank account information, e-CNY app does not have such requirements. It means that e-CNY app is not tightly linked to bank account. It increases convenience of payment since users do not need to register their bank accounts. Fourth, e-CNY app can be used without internet (The State Council, 2021). Currently, payment on the third party payment platforms depends on availability of internet. Without access to internet, payment is impossible. e-CNY uses new techniques to avoid this problem. Even users of e-CNY cannot access to internet, they can still pay. For people who have limited access to internet or places which have poor internet infrastructure, this advantage of e-CNY is meaningful. The above unique characteristics of e-CNY act as sources of its competitive advantages and make positive contribution to support its future development. Though e-CNY is at the starting point, it represents the future trend in China.

Linkage between e-CNY and digital economy

e-CNY is likely to produce significant influence on digital economy. Nowadays, China is of developed digital economy. Online transactions grow fast and have formed a huge volume. The leading third party payment platforms such as WeChat and Alipay have built dominate shares in the Chinese market. Many consumers have formed the habit of online purchasing and online financial services. Development of e-CNY tends to facilitate further development of digital economy. First, e-CNY makes online transactions more flexible, convenient, available and safe. The characteristics and advantages of e-CNY such as anonymous use, and loose linkage with account banks are supportive for online transactions. As China Daily (2022) reported, e-CNY is primarily designed to facilitate retail transactions. People can use e-CNY in different circumstances without concerns that their personal information and bank account information. In practice, some people are concerned by the problems of payment safety and privacy protection which hinder them from making online transactions (Sinclair et al, 2006). With use of e-CNY, such concerns will be minimized which stimulate people's participation in online transactions and digital economy.

Second, e-CNY supports online financial innovation and improves credibility of online financial services and products. Currently, the third party payment platforms act as active players in financial innovations. They use their advanced digital techniques as well as huge amount of user data accumulated in transactions to develop financial goods and services to attract users. However, these financial products and services largely depend on credibility of these platforms. By using e-CNY, the financial innovation on e-CNY app is supported by the central bank. Hence, credibility of these online financial services and products is of a higher level which attracts investors. Nowadays, the central bank has closely worked with commercial banks, the third party payment platforms, and other relative organizations to improve financial innovation of e-CNY. Development of online financial innovation and financial services are likely to provide strong support for digital economy. In fact, the financial industry is of strategic meaning in economic growth. It plays an important role in optimizing allocation of resources in a society (Qiao and Guo, 2020). With development of online financial innovation in the context of e-CNY, digital economy gets not only technical but also financial support.

Third, e-CNY further changes behaviors of users. e-CNY is designed to substitute cash. When users get used to e-CNY and reduce use of cash, their behaviors of investment and consumption

are likely to be reshaped. For example, to invest their money and select financial goods, they may reduce going to banks or insurance companies but choose financial goods and services online and use e-CNY. To buy goods, they may also make order online and pay with e-CNY instead of going to offline stores. People enjoy convenience of e-CNY. These behaviors reinforce people's dependency on digital economy. The dependence increases demand for online goods and services and injects energy into development of digital economy. In fact, digital economy is about not only techniques but also about behaviors and awareness of users (Bondarenko et al, 2019). When users are willing to engage in digital economy and online transactions and payments, digital economy is likely to have a solid basis of development. e-CNY drives people to get more used to digital techniques and transactions so as to guide their behaviors and creative supportive conditions for digital economy.

3. Impacts of e-CNY and digital economy on the existed financial ecology

Extension of financial ecosystem

In the context of digital economy and formal use of e-CNY in future, the existed financial ecology faces some significant impacts. One of these impacts is that financial ecosystem should be extended. Nowadays, the existed financial ecosystem is featured with the central position of financial institutions such as commercial banks and the third party payment platforms. Especially, the third party payment platforms play a very important role in the current financial ecosystem. They provide online platforms to link commercial banks, consumers and investors, and suppliers. However, some traditional suppliers or users who do not get used to digital economy or have limited access to internet and online payment channels do not much engage in the online financial ecosystem. In the offline financial ecosystem, some ordinary consumers and small and medium companies are restricted to get financial services and goods. For example, small and medium companies in China are hard to get credit loans from commercial banks (Yang and Cheng, 2020). Hence, they are excluded from offline financial ecosystem to some extent. In the context of digital economy and future use of e-CNY, engagement of ordinary users and small and medium businesses in financial ecosystem will be improved. e-CNY is convenient and available for everyone. In addition, it largely substitutes cashes in economy and drives various players to engage in online financial ecosystem. Since personal and business data are collected directly by the central bank, it is easier for the central bank to cooperate with commercial banks to rate creditability of people and businesses. Hence, ordinary users and small and medium companies with good level of creditability are likely to be included in financial ecosystem and get financial services they need.

Further integration and changing power of players

Development of e-CNY and digital economy drives further integration of financial ecosystem. On one side, e-CNY will be integrated with the existed financial ecosystem. For example, in May 2021, it was announced that e-CNY would be integrated into financial ecosystem of Alibaba (Huld, 2022). In fact, to expand user base and improve identification and acceptance among users, the central bank needs to cooperate with the leading third party payment platforms such as Alibaba and WeChat to access to broader groups of users. It indicates that e-CNY will be used in these platforms. The financial ecosystems built by the third party payment platforms are likely to be shared with e-CNY. On the other side, offline and online financial ecosystems are likely to be integrated. Since cash will be largely substituted by e-CNY, more financial goods and services will be transferred to online platforms. Hence, the offline and online financial services will be more closely integrated. In the context of digital economy and future use of e-CNY, power distribution in financial ecosystem is also reshaped. Nowadays, the third party payment platforms are at the central positions and enjoy the huge power. However, e-CNY can be a direct competitor of the third party payment platforms such as Alibaba and WeChat (Huld, 2022). e-

CNY uses blockchain technique and can form independent financial ecosystem. If the third party payment platforms fail to cooperate with the central bank and commercial banks in effective ways and create values, they can be substituted in the long term. It indicates that the third party payment platforms should improve their cooperation with the central bank, commercial banks, users and suppliers to improve their effectiveness and adapt to development of digital economy and e-CNY.

Stronger functions

Currently, the financial ecosystem has multiple functions such as payment, delivery of financial services and goods, fintech development and data analysis. With further development of digital economy and use of e-CNY, the functions of financial ecosystem should be improved. First, the existed functions need to be upgraded. For example, blockchain technique should be integrated into fintech development and relative professionals and technical companies will play a more important role in building and optimizing financial ecology (Leong et al, 2017). Second, new functions may be developed and integrated into the financial ecosystem. For example, due to the high level of safety and reliability of e-CNY, it can be used in more circumstances. The governments and public sectors can use e-CNY. In addition, financial ecosystem can be extended to the international level since digital currency and digital economy are developing in the global range. It is expected that cross-border integration and cooperation of financial ecosystems will be improved. Except for retailing payments and transactions. companies' value chain can be integrated into financial ecosystem. In other words, at each step of their production and business operation, financial ecosystem can provide strong support for them to ensure smooth flows of financial resources (Margulescu and Margulescu, 2021).

4. Reconstruction of financial ecology

To adapt to the possible impacts produced by further development of digital economy and use of e-CNY, there are some key elements for reconstructing financial ecosystem. First, financial ecology should be opener and inclusive to facilitate further integration. Financial ecosystem should be more friendly to include ordinary users and small and medium companies (Semenyuta et al, 2019). As Semenyuta et al pointed out, digital techniques facilitate lending to small and medium companies. With further development of digital economy and use of e-CNY, the advanced techniques such as big data and blockchain technique can be used to improve inclusion of financial ecosystem and support its expansion. In future, e-CNY is expected to be the basis for reconstructing financial ecosystem. In developing techniques and financial ecosystem of e-CNY, barriers for ordinary users and small and medium businesses should be identified and minimized so as to expand financial ecosystem. Since e-CNY is a newly born digital currency, it will be gradually accepted and used by people and organizations. Hence, financial ecosystem based on e-CNY should be expanded step by step to avoid risks of excessive fast expansion. In this process, information and knowledge about e-CNY should be delivered to potential users to improve their awareness so that they can be motivated to integrate into financial ecosystem based on e-CNY.

Second, players in financial ecosystem should improve their cooperation and adapt to the new relationship. The central bank is the key player and the core in the new financial ecosystem based on e-CNY. It should organize relative partners such as commercial banks and the third party payment platforms to improve technical framework of e-CNY, and accelerate financial innovation to provide more convenient and high quality financial services and products to users. In addition, new financial regulation should be developed in the context of e-CNY. The central bank should keep a close eye on the risks in the financial ecosystem and adjust its regulation policies (Supis et al, 2019; Ageyev and Vlasov, 2020). Commercial banks are backbones of the financial ecosystem. They provide financial services and ensure e-CNY is smoothly used. The

third party payment platforms need to gradually change their roles. Their powers may be weakened due to the competition produced by e-CNY. In addition, the anonymous use of e-CNY may change flows of data from the third party payment platforms to the central bank. Hence, the third party payment platforms should improve their cooperation with the central bank, the commercial banks and other users and use their advanced technologies to create values. The third party payment platforms should adapt to the further development of digital economy and e-CNY and explore new ways to show their values. At the same time, participation of ordinary users, companies, and governmental departments should be further increased. For example, more public services can be delivered online and allow people to use e-CNY to pay. In this way, the cooperative relationships between the public sector and the financial ecosystem can be promoted. In general, the new power structure will be formed in the process of reconstructing the new financial ecosystem.

Third, financial innovation and technical development are required in building the new financial ecosystem. Technical development and upgrading are necessary to support development of digital currency (Agarwal et al, 2020). Techniques can improve convenience and security of online payment and link different players in a seamless way. In particular, with development of e-CNY, data are collected by the central bank. The central bank needs to cooperate with the technical professionals and agencies to well use these data and support improvements of financial system. In this process, advanced techniques and analysis models are needed to support data analysis and improve e-CNY governance and financial risk management. At the same time, new financial products and services which accurately meet with unique characteristics of e-CNY should be developed. In this way, investors and consumers have new options of financial services and products so that they can promote their engagement in the new financial ecosystem (Goodell et al, 2021). In particular, financial innovations to serve small and medium companies should be given more attention. Impacted by the Covid19 pandemic, many small and medium companies suffer great losses and are in difficult situations. In reconstructing the financial ecosystem, their difficulties and needs should be given sufficient attention.

5. Conclusion

This essay analyzes the financial ecology in the context of digital economy especially with development of e-CNY. It is found that e-CNY has some unique characteristics which facilitate further development of digital economy. It makes online transactions safer and more convenient and provides strong support for digital economy. The further development of digital economy and future use of e-CNY are likely to produce significant influence on the existed financial ecosystem. The financial ecosystem is likely to be extended, have stronger functions, and further integrate the online and offline players. To adapt to the trends of digital economy and e-CNY, the financial ecosystem should be reconstructed by promoting inclusion, improving cooperation and integration, and accelerating financial innovation and technical development. In this process, the major players should adapt to their new roles and power redistribution. Further development of digital economy and use of e-CNY are irreversible trends and preparation should be made to adapt to these trends.

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